

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-174 (cancelled).

Claim 175 (currently amended): An *in vitro* method for the generation of cartilage tissue from mammalian cartilage chondrocyte progenitor cells expressing mechanosensitive TREK TWIK-related potassium (TREK) ion channels, the method comprising:

- (i) providing mammalian cartilage chondrocyte progenitor cells in culture *in vitro*, wherein the cells express mechanosensitive TREK potassium ion channels;
- (ii) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channels;
- (iii) contacting said cells with said magnetizable particles and allowing the magnetizable particles to couple with said TREK potassium ion channels;
- (iv) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to said magnetizable particles;

the method thereby generating cartilage tissue.

Claim 176 (previously presented): The method of claim 175 wherein the method is for the generation of artificial cartilage tissue.

Claim 177 (cancelled).

Claim 178 (currently amended): The method of claim 175 wherein said TREK potassium ion channel is TREK-1.

Claim 179 (previously presented): The method of claim 175 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 180 (previously presented): The method of claim 175 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 181 (previously presented): The method of claim 175 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 182 (previously presented): The method of claim 175 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 183 (previously presented): The method of claim 182 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite (γFe_2O_3), greigite (Fe_3S_4), and combinations thereof.

Claim 184 (previously presented): The method of claim 175 wherein the magnetizable particles comprise a chromium compound.

Claim 185 (previously presented): The method of claim 184 wherein the chromium compound is chromium oxide (CrO_2).

Claim 186 (currently amended): A method for the generation of new cartilage tissue in a patient, wherein the new cartilage tissue is generated from cartilage chondrocyte progenitor cells expressing mechanosensitive TREK TWIK-related potassium (TREK) ion channels, the method comprising:

- (i) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channel;
- (ii) administering said particles to a mammalian patient in need of generation of new cartilage tissue, wherein said particles are administered to a site in the patient at which new cartilage tissue is required to be generated and at which cartilage

chondrocyte progenitor cells expressing the mechanosensitive TREK potassium ion channel are present, and allowing the magnetizable particles to couple with said TREK potassium ion channels;

(iii) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to magnetizable particles in the body of the patient;
the method thereby generating new cartilage tissue at said site.

Claim 187 (previously presented): The method of claim 186 wherein the method involves wound healing in the patient through the generation of new cartilage tissue.

Claim 188 (cancelled).

Claim 189 (currently amended): The method of claim 186 wherein said TREK potassium ion channel is TREK-1.

Claim 190 (currently amended): The method of claim 186 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 191 (currently amended): The method of claim 186 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 192 (currently amended): The method of claim 186 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 193 (currently amended): The method of claim 186 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 194 (currently amended): The method of claim 193 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite (γFe_2O_3), greigite (Fe_3S_4), and combinations thereof.

Claim 195 (currently amended): The method of claim 186 wherein the magnetizable particles comprise a chromium compound.

Claim 196 (currently amended): The method of claim 195 wherein the chromium compound is chromium oxide (CrO_2).